Kai (Kari) Altmann

Pamela Breda

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Francesca Gavin

Peter Halley

Travis Jeppesen

Martin Mugar

Elena Giulia Rossi

Pamela C. Scorzin

Isabel Wünsche

Representing and Interpreting Abstraction Today encompasses a variety of opinions, studies, and research regarding the heterogeneity of ways to conceive and represent abstraction in contemporary times. Through two main thematic threads — one concerning representation and, more broadly, painting, and the other pertaining to the semantic and interpretative implications of the concept of abstraction in technology — the timeliness of the topic in recent years is underscored.

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REPRESENTING AND INTERPRETING ABSTRACTION TODAY ALESSANDRO FERRARO

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Representing and Interpreting Abstraction Today

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Summary

Introduction

Alessandro Ferraro

> *It's tempting to see the years 1912–25 and 1947–70 as the two golden ages of abstract art, and to feel that the present revival of abstraction is no more than a silver age. But the present is always deceptive: it was not evident to their contemporaries that Malevich, Mondrian, and Pollock were the towering giants they seem to us in retrospect. The fact is, there is a vast amount of good abstract art being made today, and the best of it is every bit as good as the best abstract art of the past. The golden age of abstraction is right now.*[1]

With this affirmation, Pepe Karmel opened his article *The Golden Age of Abstraction* (2013) about abstraction as a specific art-trend of the early 2010s. Ten years later, abstraction, according to artists, critics and historians, is still a relevant phenomenon within the contemporary international art system, despite its own troubled history.[2] In other words, according to artists and curators, the languages of abstraction have been proved as an effective artistic solution in contemporary visual culture; moreover, this fact has been hugely investigated by researchers through original studies and new historical approaches about the topic. This edited volume serves as a confirmation of historiographical and critical attention towards the idea of abstraction nowadays.

The 2010s celebrated the canonical beginnings of abstraction through major shows: the international and long-waited group show *Inventing Abstraction 1910-1925* (MoMA, 2012) offered to the visitors a symbolic diagram demonstrating the connections between the artists related to the beginning of abstraction. At the center of the representation were the canonical names linked to abstraction, such as Theo Van Doesburg, Wassily Kandinsky, Piet Mondrian, and Sonia Terk Delaunay, with a myriad of straight and crossing lines leading to other (supposedly considered 'minor') authors and artists, whose work in recent decades has been widely reevaluated and included in new narratives concerning the history of abstract art.

In terms of visual and formal affinities, the scheme-manifesto of the famous group show *Cubism and Abstract Art* by Alfred H. Barr, displayed in the very same venue in 1936, cannot fail to come to mind. At first glance, one can see significant graphic differences between the two diagrams, but the most relevant aspects pertain to the conceptual sphere: the 'evolutionary' concepts associated with the historical formalism of abstraction have been replaced by non-hierarchical rhizomatic directionalities that describe abstraction as a dense relational network. In addition to this, the representation of 'abstract-art-related-datasets' matches with an aestheticization of abstraction languages as a pop-visual solution.[3]

Although it may appear insignificant, this graphic idea substantiates much of the current thinking regarding the actual contemporaneity of abstraction. Late Nineteenth and early Twentieth Century artists, once neglected and unfairly forgotten, are now exhibited as 'contemporary artists' in major retrospectives all-over the world. This fact, strictly related to an 'archeological' justification of the current narrative of art history, is not only significant *per se*, but it also raises some issues related to the shifting of the periodization of contemporary art – in addition to what 'contemporary' really means today for art historians, critics, artists and curators. Considering *Inventing Abstraction*'s manifesto, the visual choice to present notions and data no longer in terms of a historical straight evolution – namely, from a point *a* to a definite point *b* – but rather in terms of co-existence and (sometimes) synchronicity is indicative of the progressive change of pace of the way abstraction is narrated and, eventually, understood.

The ultimate goal of the volume is to provide the reader with a reasoned overview, made up of specific focuses and emblematic case studies, of the cross-cultural dimensions of abstraction in contemporary art today. This collection of essays is not intended to be exhaustive of a specific research trend, but it rather aims to provide the audience with useful tools for approaching such an elusive and complex topic as abstraction and its visual meaning in the contemporary art system.

What follows is structured into two in-depth sections, followed by two reissues of famous essays and previously unpublished artist writings. Isabel Wünsche's essay, which opens the first section *Representing Abstraction* devoted to the relationship between painting and abstraction, frames with great historical precision the landscape of contemporary abstraction in the light of the reactions to the traditional canon of 20th Century painting. In addition to offering the reader a reasoned bibliography on the subject, she focuses on two emerging voices in contemporary abstraction, Tarini Ahuja and Xiyao Wang.

This is followed by the articles of art critics Travis Jeppesen, Francesca Gavin and Martin Mugar about the critical implications linked to new semantic terminologies concerning the idea of abstraction today. Jeppesen questions the potential of art criticism in categorizing abstraction-related art experiences: he specifically formulates the possibility of interpreting a certain kind of contemporary abstraction in a queer way. Closing the initial section are articles by Gavin and Mugar, who question instead the return of abstract painting in

contemporary art and the concept of ‘zombie abstraction’.
The second section of the edited volume (*Interpreting Abstraction*) is instead devoted to the complex, and often ambiguous, relationship between technological and architectural structures and superstructures and abstraction. Elena Giulia Rossi’s essay explores the world of data visualization, moving between art and science, questioning its nature as an abstract image. By focusing on a multitude of artists and theorists (among them, Jussi Parikka, James Bridle, Joanna Zylinska, Marco Cadioli) she demonstrates how such visualizations, known as ‘abstractions’, are closer to the world than the ones considered as hyper-realistic representations, such as the geographies produced by Google Earth’s software. Scorzin’s article consists in a detailed analysis of renowned Refik Anadol’s late artworks: indeed Anadol’s digital body of work addresses the challenges and the possibilities that ubiquitous computing has imposed on humanity and what it means to be a human in the age of AI. In her essay, Scorzin investigates how his mesmerizing abstract visuals can be characterized as a generative abstractionism that is virtual, variable, and viable. The second section is closed by Alessandro Ferraro’s essay concerning the interplay between architectural and visual speculations, popular sci-fi short novels and the process of popularization of abstraction in the early decades of 20th Century.
In addition to Peter Halley’s famous article *Abstraction and the Linguistic Paradigm* (1996) the volume is concluded with two writings by contemporary artists Kai (Kari) Altmann and Pamela Breda. While Breda insists on the peculiar features of contemporary images by formulating the concept of ‘suspended images’, Altmann provides a personal view about abstraction and ‘meta-abstractions’, reflecting how these terms actively interact with our everyday lives.

Note

1 P. Karmel, “The Golden Age of Abstraction: Right Now”, *Artnews*, April 24th, 2013. See https://www.artnews.com/art-news/news/contemporary-abstraction-2205/.

2 Among the others, *Elles font l’abstraction* (2022, Centre Pompidou, Paris) curated by Christine Macel and Karolina Lewandoska; see also G. Moreno (ed.), *In the Mind but Not From There. Real Abstraction and Contemporary Art*, Verso, London, 2019, K. Purgar (ed.), *The Iconology of Abstraction. Non-figurative Images and Modern World*, Routledge, New York, 2021, I. Wünsche and W. Gronemeyer (eds.), *Practices of Abstract Art. Between Appropriation and Anarchism*, Cambridge Scholars Publishing, Newcastle upon Tyne, 2016.

3 See L. Manovich, *Cultural Analytics*, The MIT Press, Cambdrige, 2020 and L. Manovich, “Data Visualization as New Abstraction and Anti-Sublime”, 2002: the paper can be found online at the following link http://manovich.net/content/04-projects/040-data-visualisation-as-new-abstraction-and-anti-sublime/37_article_2002.pdf. In general terms, it is useful to recall Johanna Drucker’s Graphesis. *Visual Forms of Knowledge Production* (2014) and Edward Tufte’s theoretical production about this topic.

The Role of Abstraction in Visual and Architectural Speculations: Robert Heinlein's sci-fi short tale "...And He Built a Crooked House" (1941)

Alessandro Ferraro

> *The origin of the architectural plan can be interpreted both as a ritualistic interpretation of space and as an abstraction that gives geometric accuracy to space. Here we can see that if to abstract means to pull something essential out of the totality of which it is a part, within the ritualization of life, abstraction is that which is allows spatial and temporal patterns to be established against its chronic uncertainty.*[1]

> *Science fiction is the ultimate Hegelian invention – the history of the future. In science fiction, the idea of history, which has been so thoroughly applied to that region known as the past, is grafted onto the future, establishing all our compartments of time – past, present, and future – as the domain of history, the domain of coherent, memorable, causative action. But even more so than any other form of history, science fiction, despite any claims it might make for "imagination", reveals all history as the projection of the present's ideology, the present's collective desires, dreams, and fears.*[2]

Since the early Twentieth Century, theories and speculations on abstraction have held a pivotal role in shaping the definitions of architecture, topology, mathematics, geometry, and, more broadly, modern visual expressions. Those very same theories can be considered as cornerstones to understanding the connection between abstraction in architecture, science and art during the first half of the Twentieth Century.[3] In contemporary times, relevant efforts have been made to recognize the deep interrelation among these topics. This article aims to reflect on abstract speculations in recent architectural history with a specific focus on the science fiction short novels.
The usage of abstract thinking in the architectural process, speculative fiction and scientific theorization is connected to the metaphorical visualization of the structure of thinking. Not by chance, since its beginnings, geometry has been perceived as a divine attribute capable of inspiring people toward an ideal of transcendent perfection.[4] Geometry, along with its visual depiction, serves as an attempt to delve into the essence of abstraction. In the following text we will explore analogies between abstract thinking, geometrical phantasies, and

architectural speculations in the Twentieth Century, with a specific focus on the short novel *...And He Built a Crooked House* (1941) by the American science fiction writer Robert A. Heinlein (1907–1988).

Architectural speculations over abstraction and geometrical forms: cubical forms and nightmarish houses

> *The world of ideas, beliefs, fantasies, projections, is (I must emphasize again) just as real whilst it is acted upon as the post which Dr. Johnson kicked in order to demonstrate that it was solid.*[5]

> *The International Stylists design abstract houses for abstract people on abstract landscapes.*[6]

The reconsideration of the architectonic structure of the house has posed a significant challenge for Modernism. Nevertheless, it has frequently been considered as an experimental field for abstract and theoretical approaches to the novel concepts of housing. As is well-known, in certain cases, these experiments did not achieve the success they aspired to. Furthermore, they embedded the contradictory and ambiguous essence of Modernism primarily because of their divergence from the real necessities of the inhabitants and to their pursuit of 'abstract' goals. Despite their artistic qualities, Le Corbusier's houses have been often viciously criticized by their tenants.[7] This specific topic has been recently the core of various relevant art projects: the following examples give us back a general idea of how this topic is broadly perceived among the artists themselves. Merryll Hardt's *A Radiant Life* (2013) is a short film dedicated to the relation between human environment and Le Corbusier's architectural plans of *La Cité Radieuse* in Marseille. Focusing on the aesthetic and architectural contradictions of that famous site, the French director inquires spatial radicalism and its failures. A comparable statement can be made regarding the photographic project *Fragile/Concrete* (2021) by Mária Švarbová, wherein she highlights the struggle to harmonize the human body and Modernist architectural plans and designs – similar to the preceding example, the entire photographic project is shot in the *Radiant City* in Marseille. Above all else, Minoru Yamasaki's *Pruitt Igoe* residential projects, deeply influenced by Le Corbusier's *ville radieuse*, are now considered as a crystal-clear paradigm of modernist aberrations.[8]
In regarding this, it is pertinent to recall the critique published by the former *House Beautiful* editor-in-chief Elizabeth Gordon in 1953 within her own magazine opposing the International Style and its proponents. The following passages are extracted from her eloquently titled article, *The Threat to the Next America*.

> *There is a well-established movement, in modern architecture, decorating, and furnishings, which is promoting the mystical idea that "less is more". Year after year, this idea has been hammered home by some museums, some professional magazines for architects and decorators, some architectural schools, and some designers. [...] I know that architects who abhor the bad houses that are glorified in some of the trade journals are unwilling to complain to the editors and publishers for the fear their own work would be boycotted as a result. [...] In other words, these International Style designers are much more concerned about appearance than they are about performance. [...] They apply the canons of Cubist painting to everything they handle: chairs, desks, chests, gardens, or houses. The highest praise they give an object is that it is like a Mondrian painting. Their work is a schoolboy's exercise in cubes and rectangles.*[9]

First of all, it is relevant that the former *House Beautiful* editor regards International Style as a synonymous with Modernism. Rather than analyzing it as a result of specific and national cultural logics, she critiques modernist abstraction as a unified strong entity. Notably she strongly condemns the incorporation of art-related forms associated with geometrical abstraction as a source of inspiration for architectonical forms. Elisabeth Gordon's daring interpretations ends up in comparing Le Corbusier's architectural style to a geometrical house-shaped. In this case, geometry becomes a term of comparison of the paucity of architectural imagination to 'abstract and artist-like' goals. According to Gordon, a vague cultural dictatorship of the abstraction – namely, in her own words, the International Style – in architectural design emerged in postwar architecture.[10] Her very same article has profoundly influenced future speculations about the ideal house for the America's middle class.[11]

Delving into cubes, rectangles, and architectural nightmares, the primary case study for this research is now presented.

In February 1941, the American science-fiction novelist Robert Heinlein – who coined the term *speculative fiction* – published his short tale titled *...And He Build a Crooked House* on the pulp magazine *Astounding Science Fiction*.[12] His short tale is a peculiar expression of his ideas on modernism, architecture and arts, and it has been considered as one of his most important short tale.

In the story, Robert Heinlein portrays the misunderstood architect from Los Angeles Quintus Teal, a staunchly anti-modernist and egomaniacal architect. Quintus Teal opts to plan a house in the form of a Tesseract, a four-dimensional abstract structure, aiming to measure his architectural prowess against renowned famous colleagues such as Frank Lloyd Wright, Le Corbusier and Richard Neutra. He conceived

the design in a single night, and the next morning, to his astonishment, the house had become real – his thoughts, speculations and imagination had become reality. Proud of his newfound building, he invited some friends to witness the innovative structure, only to discover that they mysteriously became trapped within the confines of the four-dimensional house. In essence, without giving away the story's ending, this is the primary plot of the short tale. On a metafictional level, we can assert that Quintus Teal, namely Heinlein himself, devised this house to underscore the contradiction between traditional architecture, which he indeed favored, and modernist architecture. He chose to design a house in the form of Tesseract because, at that time, four-dimensionalism was considered a pioneering philosophy strictly tied to the idea of abstraction – this concept has been never applied to architecture before.[13]

Just as Ayn Rand emphasizes in her 1943 novel *The Fountainhead*, Heinlein's 1941 features an artist-like architect obsessively fixated on the idea of designing a house in the form of an abstract and geometrical concept. Furthermore, in connection to the theory of four-dimensionalism, during his youth and with the guidance of his wife Leslyn Macdonald (1904-1981), Heinlein delved into non-Euclidean geometry, topology, theosophy, and explored the works of authors such as Charles Hinton (1853-1907) and Peter D. Ouspensky (1878-1947).[14] Not by chance, Robert Heinlein's works are considered a cornerstone for speculative fiction due to their own futuristic predictions.

The humans trapped inside the four-dimensional house are metaphorically imprisoned by the architect's vanguardist ideas who shifts the needs of the humans to his foolish and rambling plans. This example is paradigmatic in bringing attention to the connection between abstraction, architecture and Modernism.[15] Indeed, Heinlein's tale serves as a metaphor for the internal contradictions of Modernism, highlighting one of its main problems: the application of theory into practice. In this context, the abstract idea of the Tesseract, a sci-fi symbol that stands for idealized geometrical knowledge, is manifested as a form of materialized epistemology that underscores the very essence of the architectural process.

As is widely recognized, many modernist architects during the Fifties faced frequent criticism for their ideas, that were perceived as too detached from the needs of human beings. Modernist architects have often been compared to a religious cult: the new members of this cult – namely the young architects – were expected to adhere to the dogmas formulated by the old masters. Similar to Elisabeth Gordon's condemnation of European modernist architects, the American critic Tom Wolfe took a stance against International Style in his renowned essay *From Bauhaus to our House* (1981). He stated:

> *Le Corbusier's instincts for the compound era were flawless. Early on, he seemed to comprehend what became an axiom of the artistic competition in the twentieth century. Namely, that the ambitious young artist must join a 'movement', a 'school', an ism – which is to say, a compound. He is either willing to join a clerisy and subscribe to its codes and theories or he gives up all hope of prestige.*[16]

In his essay, Wolfe insists also on the previously mentioned issues concerning the dialectic between the architectural project and its concretization, between the abstract utopia and its actual realization. While we may reasonably disagree with Wolfe's ideas about modern architecture, it is important to note that his writings have significantly influenced contemporary perceptions of modernist abstraction – even the contemporary idea of modern art in a broad sense. What is notable here is the clear opposition displayed by the American critic against the most cutting-edge and radical architectural projects: according to Gordon and Wolfe, architectural speculation should, indeed, be reserved for sci-fi and pulp magazine. But at the same time, we are aware that history of contemporary architecture didn't unfold as they have imagined.

At this point, we have tried to reconcile different perspectives concerning the meaning of avant-garde, abstraction as a major cultural and international logic, and the common sense associated to architecture. To add complexity, it is worth reminding that Robert Heinlein published plans for a house of the future in the June 1952 issue of the magazine *Popular Mechanics*. Here is a brief excerpt from that text.

> *In what kind of house will the captain of a spaceship live during his stopovers on earth? It's too early to say yet, though probably it will contain some of the features of a residence just built by Robert A. Heinlein in Colorado Springs, Colorado. [...] The engineering training that gives him a solid background for writing about the mechanics of space travel also has helped him in designing a house that's called extreme today but may become conventional before the 20th century has run its course.*[17]

Just like the plot of the comedy film *Mr. Blandings Builds His Dream House*[18] (directed by Henry Codman Potter, 1948), the American novelist grasped some of the most problematic aspects of the new postwar architectural culture. Within *Popular Mechanics*, Heinlein included his own practical sketches and plans to build his avant-garde house. What is compelling here is that Heinlein foresaw a utopian housing project for American middle-class, but at the same time, as we have demonstrated, he emphasized aberrations and abstraction-tied

speculations in architecture in his writings. This fact provides a general insight into how challenging and ambiguous it was to navigate, during those years, utopian phantasies related to abstract-oriented architectural plans.

Prior to Heinlein's short tale, in 1931, the American reverend Louis Tucker (1872-1952), author of *Some Studies in Religion: Portion of Christian Evidences Translated out of the Technical Terms of Theology into those of Popular Science* (1903) and occasionally science-fiction writer, pondered on this very same topic but from a slightly different perspective.[19]

In his short tale, titled *The Cubic City* (1929), the American author is fictionally portrayed as the explorer and writer Griswold Lee, who, by chance, finds himself in the future, in a hyper-techno-utopian New York City. Tucker describes the new world as fundamentally distinct from the past: the entire population of the new city resides in gigantic cubic structures where everything is organized geometrically and rationally. Each citizen is mandated to live according to the new urbanistic laws imposed by those in higher ranks. In other words, the entire New York City has been replaced by a singular geometrical structure, specifically a high-tech cube capable of accommodating every New Yorker: "The Cubic City is two miles wide, two miles long and two miles high. It has eight hundred floors and is as large as the ancient city forty miles long and twenty wide. Its population is eighty million".[20]

This short tale bears a resemblance to Heinlein's narrative efforts: at its core lies the notion of geometry as something perfect and ideal, capable of inspiring human beings to improving their own lives according to the example of the rationality and geometrical order.

Heinlein's *...And He Built a Crooked House* is illustrated by four small drawings by the American graphic artist Charles E. Schneeman Jr., who worked as cartoonist for *Astounding Stories* (July 1935-August 1937) and *Astounding Science Fiction* (March 1938-September 1951): unfortunatly, none of them is relevant, visually speaking, for our purpose because of their own traditionalistic appearance. The first small drawing published in February 1941 depicts two scientists sketching a geometrical figure. The second illustration shows a Tesseract-like structure with numbers and small drawings on its surface. The third and the fourth pictures provide additional visual descriptions directly inspired from the short tale.[21] A different illustration of Heinlein's short tale has been drawn by Virgil Finlay and can be found in a later publication of the same tale in 1951.[22] This peculiar illustration of the novel depicts the three main characters within the four-dimensional house, fully furnished as a typical American middle-class home.

So far, we have seen how the idealization of geometry can result in a misunderstanding of the needs and goals of architecture. This is due to the fact that geometry and topology represented a form of abstract

knowledge that has frequently been decontextualized and applied arbitrarily in different contexts. Secondly, what also emerges from the previous case studies is that the usage of geometrical abstraction to envision the future spatial experience of humans is strictly linked to a specific visual-narrative purpose. The contradictions of Modernism are truly evident in architectural plans, as they forcibly adapted an abstract concept to an everyday necessity like the housing issue.

Conclusion

> *Thus geometry appears, the first character of our parable. The square block is the first and last act in the history of architectural ideas, as the intersection of the relationships between technology/sacredness/utilitarianism, between man chine ration structure and history. Architecture is a closed, immobile object, referring only to itself and to the use of reason, an unknowable object irradiating light dawn rainbows, until it takes off in flight into isometric space. The block is forced into a perfect cube by two straps and as soon as it freed, it divides up into pieces, following precise laws and showing each time its governing principles until it becomes a series of smaller cubes, and yet smaller and the parts disperse, but order does not generate disorder and each part has with it the genetic message of its ordered race.*[23]

> *The deployment of the geometric dominates the landscape. Space is divided into discrete, isolated cells, explicitly determined as to extent and function. Cells are reached through complex networks of corridors and roadways that must be traveled at prescribed speeds and at prescribed times. The constant increase in the complexity and scale of these geometries continuously transforms the landscape.*[24]

The last excerpt is extracted from Peter Halley's essay *The Deployment of the Geometric*, a thoughtful and actual reflection on the interplay between geometry, human life, and the rationalization of the space. In addition to his famous essays from the Eighties and the Nineties, in the mentioned essay, he explores the idealization of geometry on an intercultural level and how this cultural logic persists in our everyday lives. While we may acknowledge that things, in a general level, might have changed from the Eighties, of course he is not alone in these thoughts about the mentioned topics – consider, for instance, the radical architectural plans of the Italian group Superstudio. (Fig. 1)
In this short essay, we have explored the visualization of abstraction as a main issue in the development of architectural project. The choice

to focus on Heinlein's novel and projects is linked to the opportunity to consider abstraction not only a visual culture issue but also as a comprehensive and broad cultural logic that reshaped, for better or for worse, the entire landscape of studies related to architecture, abstraction, and avant-garde. Indeed, despite the fact that a general cultural history of abstraction and its usages has never been written, we might argue that abstraction can be considered as a form of interdisciplinary knowledge that constantly reshapes and reframes its potentiality through visuality and through historical contexts.
In this paper, we have shown how the ambiguity of abstraction can lead to contradictory architectonical practices; nevertheless, despite these challenges, it remains the cornerstone for our concept of architecture. As explained, architectonical speculation does not neglect a certain degree of abstraction, upon which depends the epistemological value of mental prospection. When abstraction, geometry and architecture happen to coincide, negative or positive examples derive according to their contexts; nevertheless, it is important to emphasize the interdisciplinary feature of these term within architectonical practices.

Alessandro Ferraro, Ph.D. in Contemporary Arts, currently teaches History of exhibitions and curatorial practices at the University of Genoa. He has published in various academic journals, with his research primarily focusing on the history of abstraction and the relationships between exhibition displays, curatorial practices, and the history of exhibitions. He is currently a research fellow at the University of Parma and he is publishing the monograph titled "L'astrazione come condizione storica" with the Italian editor Mimesis.

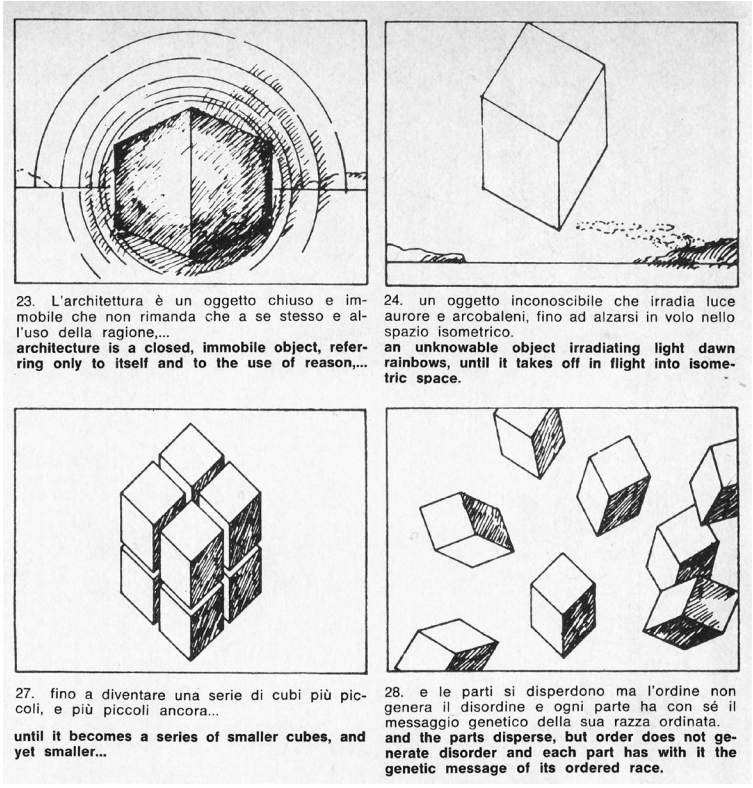

Fig. 1 Superstudio, from the article "Il monumento continuo/storyboard per un film", *Casabella*, 1971, a. 35, v. 358, p. 20

Note

1 P. Aureli, "Life, Abstracted: Notes on the Floor Plan", *e-flux*, October 2017. https://www.e-flux.com/architecture/representation/159199 life-abstracted-notes-on-the-floor-plan/

2 P. Halley, "Science Fiction", *New Observations*, n. 17, 1983; the text has been originally published during Peter Halley's curated exhibition *Science Fiction* at John Weber Gallery. Cfr. L. Liebmann, "Science Fiction", Artforum, December 1983, v. 22, n. 4, pp. 74-75.

3 M. Marcolli, *Lumen Naturae. Visions of the Abstract in Art and Mathematics*, MIT Press, Cambridge, 2020, pp. 239-242; 298-302.

4 From Plato to Pavel Florenskij and Matila Gyka, hundreds of examples can be reminded about this topic. For a general overview, it is useful to recall N. Sinclair; D. Pimm; W. Higginson (eds.), *Mathematics and the Aesthetic*, Springer Verlag, Berlin, 2007.

5 L. Mumford, *The Story of Utopias*, Viking Press, New York, 1962, p. 24.

6 J.A. Barry, "Report on the American Battle between Good and Bad Modern Houses", *House Beautiful*, May 1953, v. 95, n. 5, p. 272.

7 N. Sully, "Modern Architecture and Complaints about the Weather, or, 'Dear Monsieur Le Corbusier, It is still raining in our garage...", *M/C Journal*, 2009, v. 12, n. 4. Available online at: https://journal.media-culture.org.au/index.php/mcjournal/article/view/172

8 For further readings about Yamasaki see P. Kidder, *Minoru Yamasaki and the Fragility of Architecture*, Routledge, London, 2021. Concerning the dialectics between Modernism, urban city planning, and Postmodernism see L. Lippolis, *Viaggio al termine della città. Le metropoli e le arti nell'autunno postmoderno* (1972-2001), Elèuthera, Milano, 2009.

9 E. Gordon, "The Threat to the Next America", *House Beautiful*, April 1953, v. 95, n. 4, pp. 127-130.

10 Here is another quote from Gordon's essay: "Combining the direct Cubism of Le Corbusier and the Cubist derivative of Mondrian, International Stylists are still playing with blocks 30-odd years after Picasso went on to something else [...] Le Corbusier, in addition to being an architectural theorist, was also a Cubist painter named Charles Jeannette. He was early taken by the functional, box-like form of the American factory and from it developed much of his architectural point of view. Since the factory is a "machine for working," he reasoned, why not make a house that is a "machine for liying?" So he took the form of the factory, played with it in oil painting after oil painting along Cubist lines, and came up (together with Oud, Gropius, and Mies) with the International Style." E. Gordon, op. cit., p. 240-241.

11 Cfr. M. Penick, *Elizabeth Gordon, House Beautiful, and the Postwar American Home*, Yale University Press, 2017.

12 R. Heinlein, "...And He Built a Crooked House", *Astounding Science Fiction*, February 1941, v. 26, n. 6, pp. 68–83. The first version of the short tale – without illustrations – can be found also in C. Fadiman (ed.), *Fantasia Mathematica*, Simon and Schuster, New York, 1958, pp. 70-83.

13 M. Blacklock, *The Emergence of the Fourth Dimension: Higher Spatial*

Thinking in the Fin de Siècle, Oxford University Press, Oxford, 2018, pp. 24–40. Heinlein's short tale is mentioned in L. Darlymple Henderson, "Science Fiction, Art, and the Fourth Dimension", in M. Emmer (ed.), *Imagine Math 3. Between Culture and Mathematics*, Springer International Publishing Switzerland, 2015, pp. 78-79. For further readings about this topic see also L. Darlymple Henderson, "The Image and Imagination of the Fourth Dimension in Twentieth Century Art and Culture", *Configurations*, 2009, v. 17, n. 1-2, pp. 131–160.

14 W. Patterson, *Robert A. Heinlein: In Dialogue with His Century: Volume 1, 1907–1948: Learning Curve*, Tom Doherty Associates, New York, 2010, p. 221.

15 For further readings concerning the linking between Modernism, the violence of abstraction and the cubic form as a minimal module of architecture I suggest Vidler's considerations about Bernard Tschumi's cases vides. A. Vidler, *The Architectural Uncanny. Essays in the Modern Unhomely*, MIT Press, Cambridge, 1992, pp. 101–110.

16 T. Wolfe, *From Bauhaus to Our House*, Picador, New York, 2009, p. 30.

17 T. Stimson, "A House to Make Life Easy", *Popular Mechanics*, June 1952, v. 97, n. 6, pp. 65-67.

18 Cfr. Patterson's official biography on Heinlein and Patterson's letters to Virginia Heinlein.

19 He is mainly known for his christian-oriented novels and essays titled *Men of the Way: Stories of the Master and His Friends* (1922) and *Clerical Errors* (1943).

20 L. Tucker, "The Cubic City", *Science Wonder Stories*, 1929, v. 1, n. 4, p. 320. His short story has been reissued also in 1942. See L. Tucker, "The Cubic City", *Startling Stories*, 1942, v. 8, n. 2, pp. 84-92.

21 For further insights see the OAC (Online Archive of California), Schneeman (Charles E.) Papers, collection number D-238. Schneeman has drawn illustrations and cartoons for other famous science-fiction writers who published for *Astounding Science Fiction* such as Theodore Sturgeon, Jack Williamson, Clifford Simak, Isaak Asimov. The illustrations of Heinlein's short tale can be found online: https://archive.org/details/sim_astounding-science-fiction_1941-02_26_6/page/n3/mode/2up

22 R. Heinlein, "...And He Built a Crooked House", *Famous Fantastic Mysteries*, 1951, v. 13, n. 1, pp. 68-77; 113.

23 Superstudio, "Il monumento continuo/storyboard per un film", *Casabella*, 1971, a. 35, v. 358, p. 20.

24 P. Halley, "The Deployment of the Geometric", *Effects*, Winter 1986.

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